**Due 2-15-17** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Per\_\_\_

Graphing Activity: A Family of Ferris Wheels

A) Task: You are a new hire of the Soaring Round the Heights Ferris wheel company. Your supervisor needs you to know all the information about different Ferris wheels that the company has to offer. So, you want to make sure you have your facts straight about each Ferris wheel that is offered. You will need to give specifications that will show customers how the ideal Ferris wheel will offer them a fun ride – include the equation that models the Ferris wheel, the maximum and minimum heights on the ride, the time of one revolution of the wheel and the linear speed of one revolution of the Ferris wheel. All equations for the Ferris wheels have height in feet and the time is in minutes. Remember that Ferris wheels turn in a counterclockwise direction.

Ferris Wheel Choices:

1. This Ferris wheel is modeled by the equation h(t) = -12 cos t + 14.

2. This Ferris wheel is modeled by the equation h(t) = 15 sin 0.5t + 17.

Before moving onto 3-5, think about what the numbers in the equations represent for the maximum, minimum, and the time for a revolution. How do you put them from the equation?

3. This Ferris wheel has a radius of 30 feet and the bottom of the wheel is 6 feet about the ground. The wheel rotates at a constant speed, and takes 100 seconds to complete one revolution.

4. This Ferris wheel has a radius of 60 feet and travels at a rate of 5 revolutions per minute. Riders board at the bottom chair from a platform 3 feet above the ground.

5. This Ferris wheel in this family has a radius of 60 feet, the center is 100 feet above the ground, and each revolution takes 10 minutes.

B) Two amusements parks are looking to purchase a new Ferris wheel. Park 1 is looking to cater to families, including small children. Park 2 wants to attract families with teenagers. Based on your work with the above five Ferris wheels, make a recommendation for each park on the most appropriate choice. Be sure to back up your selection with your reasoning for the choice.

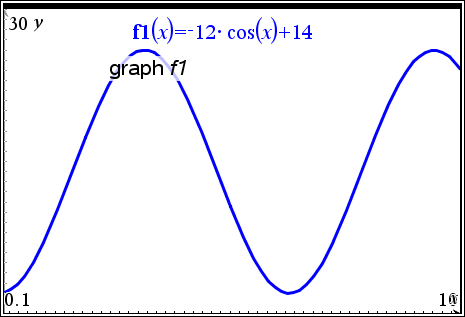
1. This Ferris wheel is modeled by the equation h(t) = -12 cos t + 14.

Maximum: 26 ft

Minimum: 2 ft

Time for 1 Revolution: 2pi minutes

Linear Speed: .1363 mph



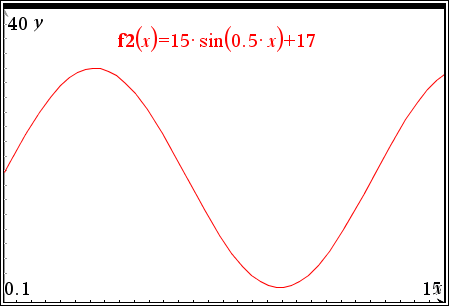
2. This Ferris wheel is modeled by the equation h(t) = 15 sin 0.5t + 17.

Maximum: 32 ft

Minimum: 2 ft

Time for 1 Revolution: 4pi minutes

Linear Speed: .0852 mph



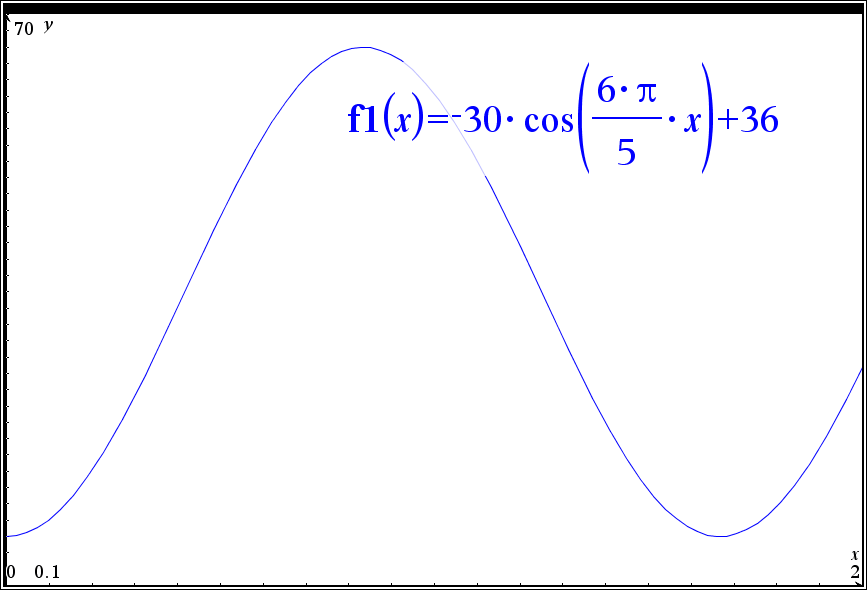
3. This Ferris wheel has a radius of 30 feet and the bottom of the wheel is 6 feet about the ground. The wheel rotates at a constant speed, and takes 100 seconds to complete one revolution.

Maximum: 66 ft

Minimum: 6 ft

Time for 1 Revolution: 5/3 min

Linear Speed: 1.285 mph



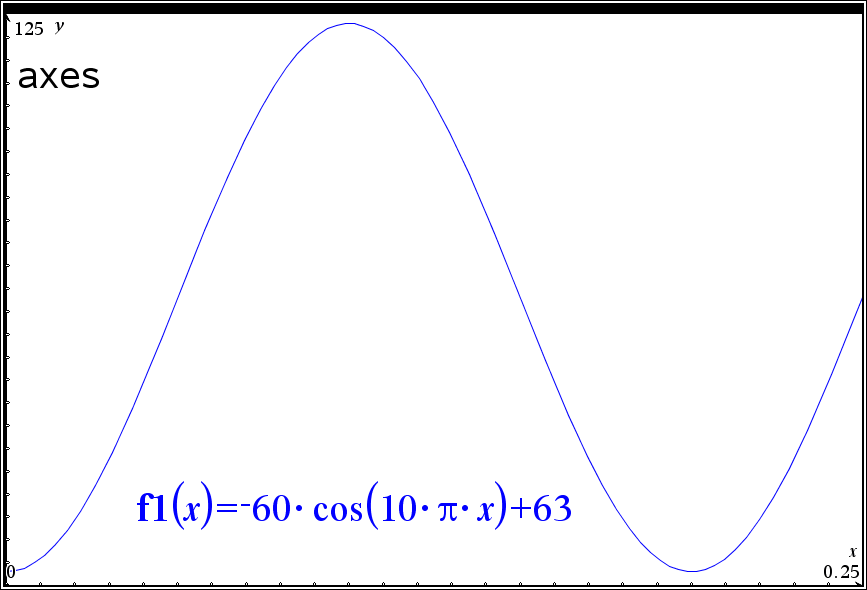
4. This Ferris wheel has a radius of 60 feet and travels at a rate of 5 revolutions per minute. Riders board at the bottom chair from a platform 3 feet above the ground.

Maximum: 123 ft

Minimum: 3 ft

Time for 1 Revolution: 1/5 min

Linear Speed: 21.42 mph



5. This Ferris wheel in this family has a radius of 60 feet, the center is 100 feet above the ground, and each revolution takes 10 minutes.

Maximum: 160 ft

Minimum: 40 ft

Time for 1 Revolution: 10 min

Linear Speed: .428 mph

